

**Listing of Claims:**

Claim 1 (withdrawn): An optical fiber diffuser comprising an optical fiber having a light transmitting core and a nanoporous silica cladding, wherein a section of said nanoporous cladding is modified to create scattering sites.

Claim 2 (currently amended): The optical fiber diffuser according to claim 1 comprising an optical fiber having a light transmitting core and a nanoporous silica cladding, wherein a section of said nanoporous cladding is modified to create scattering sites, and wherein said modification of said section of said nanoporous silica cladding is at least partially consolidating said section at a distal end of said optical fiber by heat energy.

Claim 3 (currently amended): The optical fiber diffuser according to claim [1] 2, wherein said modification of said section of said nanoporous silica cladding is treating said cladding section with a light scattering compound.

Claim 4 (original): The optical fiber diffuser according to claim 3, wherein said light scattering compound is selected from a group consisting of titanium dioxide, aluminum oxide, diamond dust, powdered sapphire, powdered zirconia and powdered quartz.

Claim 5 (previously presented): The optical fiber diffuser according to claim 2, wherein said nanoporous silica cladding section has been treated with a light scattering compound prior to said consolidation.

Claim 6 (original): The optical fiber diffuser according to claim 5, wherein said a light scattering compound has a radial distribution after consolidation.

Claim 7 (original): The optical fiber diffuser according to claim 5, wherein said diffuser has a gradient index over its length.

**Claim 8 (original):** The optical fiber diffuser according to claim 5, wherein said diffuser has a step index, having clearly defined refractive index regions over its length.

**Claim 9 (original):** The optical fiber diffuser according to claim 2, wherein said nanoporous silica cladding is consolidated into one or more spirals at a distal end of said optical fiber.

**Claim 10 (original):** The optical fiber diffuser according to claim 2, wherein said nanoporous silica cladding is consolidated into one or more rings at a distal end of said optical fiber.

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**Claim 11 (currently amended):** The optical fiber diffuser according to claim [1] 2, wherein the shape of said diffuser is selected from a group consisting of cylindrical, elliptical, spherical, and custom shapes.

**Claim 12 (original):** The optical fiber diffuser according to claim 11, having a cylindrical shape, and wherein a mirror is secured to a polished distal end of said diffuser.

**Claim 13 (original):** The optical fiber diffuser according to claim 12, wherein said mirror is secured and produced by vapor deposition of a reflective metal.

**Claims 14-20 (previously withdrawn)**

**Claim 21 (previously presented)** The optical fiber diffuser according to claim 2, wherein said diffuser has a gradient index over its length.